COMMENTS AND RESPONSES

Maternal Glucose at 28 Weeks of Gestation Is not Associated With Obesity in 2-Year-Old Offspring: The Belfast Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Family Study

Comment on Pettit et al.

We read with great interest the article by Pettitt et al. (1). The authors examined the relation of glycemia during pregnancy with anthropometry in offspring of 1,165 nondiabetic pregnant women from the Belfast U.K. center of the multinational Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Study. Overall, the correlations between maternal glucose during pregnancy and BMI *Z* score at age 2 years were weak and the only association that reached statistical significance was between categories of maternal 1-h glucose and BMI *Z* score ≥85th percentile at age 2 years ($P = 0.017$). These findings are in line with an earlier study by Knight et al. (2) in 2007 that showed that maternal fasting plasma glucose was significantly correlated with child birth weight, but that there was no correlation with weight from 12 weeks to 2 years of age. Similarly, Krishnaveni et al. (3) reported in 2005 that the increased body size observed at birth in offspring born to Indian mothers with gestational diabetes mellitus (GDM) diminished in the 1st postnatal year and reappeared in only female children by 2 years of age.

These findings are in some aspects comparable to a study performed by our group in Crete, Greece (4). The mother-child "Rhea" study in Crete is a prospective cohort examining pregnant women (Greek and immigrant) residents at the prefecture of Heraklion that became pregnant during 1 year starting in February 2007 and initiated prenatal care before 15 weeks of gestation. Six hundred and thirty-five pregnant women and their children, were included in this analysis. Pregnant women were screened for GDM between 24 and 28 weeks of gestation, and GDM was defined by the criteria proposed by Carpenter and Coustan. Weight, height, abdominal circumference, and skinfold thickness (triceps, quadriceps, subscapular, and suprailiac) were measured at 18 months of age (59 offspring of mothers with gestational diabetes). Multivariable linear and logistic regression models were used to estimate the effect of GDM on the risk of adiposity in early childhood after adjusting for offspring sex, age, maternal education, and parity. Offspring of mothers with GDM did not differ significantly in BMI (β coefficient −0.20 [95% CI −0.83 to 0.44]), abdominal circumference (β coefficient 0.30 [95% CI −0.65 to 1.25]), or body fat percentage (β coefficient −0.27 [95% CI −1.59 to 1.05]) compared with offspring of nondiabetic mothers after adjustment for offspring sex, age, maternal education, and parity. Similarly, adiposity rates (BMI ≥85th percentile; abdominal circumference ≥85th percentile; sum of skin folds >85th percentile; and percent body fat >85th percentile) did not differ significantly between the two groups.

Therefore, it is probable that the impact of maternal glycemia during pregnancy on offspring growth is transient because it is not detectable at the first 2 years of age, even though in the long-term the associations between GDM and childhood obesity recur in older ages.

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